



*Thermoglaze*  
*Model TG 50*  
Operator's Manual

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**Congratulations on buying a new Thermoglaze from Belshaw Adamatic Bakery Group. Please inspect the unit carefully for damage or missing pieces immediately after receiving your system.** Belshaw cannot pay for shipping damage, because the freight company has accepted the machine from Belshaw in good condition, and is responsible for its safe delivery.

**For your protection, each crate should be inspected before signing the Bill of Lading to report any visible damage caused by the trucker in transit, and account for the number of crates.**

### EQUIPMENT RECORD

Please provide the information below when you correspond with us about your machine.

Purchased by \_\_\_\_\_

Installed by \_\_\_\_\_

Date of Installation \_\_\_\_\_

Model number \_\_\_\_\_

Serial number \_\_\_\_\_

010810

MN-1720WM

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# Preface

The operator of the Thermoglaze is expected to behave safely, read this manual before operation, and follow its instructions and warnings.

Study the instructions and warnings in this manual carefully before operating the equipment. A thorough understanding of how to install, maintain, and safely operate the Thermoglaze will prevent production delays and injuries. Prior operation of the equipment before reading and understanding the instructions in the manual will void the warranties of the equipment.

To use the Thermoglaze safely, heed the following warnings and all other warnings that appear in this manual:

- To avoid damaging the Thermoglaze, never use force to assemble, disassemble, operate, clean, or maintain it.

# 1 Unloading and Uncrating

## DO NOT LIFT EXCESSIVE WEIGHT

Once the crate has been delivered, immediately take the covers off the crate and inspect for hidden damage. If damage is found, make a damage claim to the shipping company. After inspection, cut the banding and remove any other restrains from the Thermoglaze unit. Remove the banding and other packing material from the Thermolizer unit. Roll the Thermolizer, carefully, off the skid first and move it near the area where it will be assembled. Roll the Thermoglaze unit, carefully, off the skid and move it near the area where it will be assembled.

**Do not connect the Thermoglaze or the Thermolizer to electrical power before completing the assembly and placement of the products.**

Figure 1-1 shows the system in the crate ready to be unpacked. The cartons under the Thermoglaze contain the glaze trough. See Section 4 to assemble the unit. The carton in the Thermolizer contains the doors and other interior parts. See Thermolizer manual for assembly instructions.

The Thermoglaze system has been designed for quick assembly and installation. Within a short time of receiving the system, the installer can have the Thermoglaze ready to make donuts if the electrical connections are properly installed and inspected by the prevailing local authorities.



Figure 1-1 Packed Thermoglaze System

# Installation

# 2

## WARNING

To avoid electrocuting yourself or damaging the Thermoglaze, never allow water, steam, cleaning solution, or other liquid to enter the electrical panels or connections

## Electrical:

Model	Dimensions	Power Requirements
TG50	88"L x 40W x 63"H	See data tag

Make sure that the power requirements of the Thermoglaze, shown on the data plate, match your power source.

Only plug in to power source that matches the required voltage and current for the Thermoglaze. (The Thermoglaze unit TG50 comes standard with a Hubbel 360P6W plug that needs a 360C6W socket or equivalent for electrical current.

Thermoglaze must be electrically grounded and connected in compliance with the National Electrical Code, ANSI-NFPA 70, and applicable municipal building codes.

Do not apply electrical power to the system until the assembly has been completed. See Section 4 for the assembly of the Thermoglaze.

## Venting:

Local codes prevail. The authorities having jurisdiction are stated in NFPA 96-1994 regarding requirements for the Thermoglaze.

## Building Layouts:

Specification sheets and AutoCAD drawings for use in developing architectural drawings can be provided by request. Please call your Belshaw Bros., Inc. representative for help in defining your requirements.



# Assembly

## 3

**Clean all parts with mild soap and water and let dry before assembly and applying electrical power to the equipment.**

The Thermoglaze unit is design for ease of assembly and use. The system is crated in a manner so there are few pieces to put together once the Thermoglaze is in place for production.

After unpacking the system per the uncrating instructions, 1 item needs to be placed on the Thermoglaze to finish assembly: the glaze

trough. The Glaze trough slips into the 2 holes on either side of the drain tray with the waterfall headed toward the oven. See figure 3-1 and 3-4 for help setting the trough in place. After the trough is in place attach the glaze hose to the trough by pushing it in the hose mount in the center of the trough.

To help familiarize you with your Thermoglaze, please study the following photographs:



Figure 3-1 Thermoglaze front view



Figure 3-2 Right Hand View:



Figure 3-3 Control Panel View:

## **WARNING**

**TURN OFF POWER SOURCE TO THE  
MACHINE BEFORE REMOVING ANY  
ACCESS COVER OR GUARDS**

The Thermoglaze system consists of a Thermoglaze unit and the Thermolizer. They are placed in unison in the area located for the production of donuts. See Figure 4-6 for Thermoglaze system.



Figure 3-5 Thermoglaze System.

## **WARNING**

**DO NOT CONNECT THE  
THERMOGLAZE TO ELECTRICAL  
POWER BEFORE COMPLETING THE  
ASSEMBLY PLACEMENT OF  
PRODUCTS**

# Operation

## 4

- Turn on oven power switch and allow to heat to operating temperature. (**Note: conveyor will not move until the oven is up to operating temperature and the donut ready light is on.** See Figure 4-1.)



Figure 4-1. Oven Ready Light.

- Load glaze reservoir with 40 pounds (one large bucket) of glaze and turn on the glaze pump.

### WARNING

Do not operate glazer without glaze or water in the pump. Doing so can cause permanent damage to the pump.

- After the donuts have been in the Thermolizer for at least 20 minutes (60 minutes for filled product), turn on glazer using the on switch located on the main control panel.
- After the donuts are thawed, place a screen of donuts from Thermolizer box to the infeed end of the Thermoglaze conveyor and allow the screen to travel through the oven and glazer. This takes approximately 1-1/2 to 3 minutes.

- When the screen of donuts is through the glazer and stopped forward travel, place the glazed product on a rack for cooling using the 2 delrin tray grips provided with the unit.

### WARNING

To avoid burning yourself, never touch the Thermoglaze unit, conveyor, or interior of the oven while the machine is in use.

### WARNING

Thoroughly clean and dry the floor if water or other materials are spilled. Materials spilled on the floor may cause serious injury and loss of life.

### WARNING

Conveyor will automatically start when Thermoglaze reaches operating temperature.

### CAUTION!

Donut screens are hot after coming out of the glazer and will burn you if you grab them without the handles.

### CAUTION!

To avoid burning yourself, never touch the hot infeed oven end panel when the machine is in operation.

---

**CAUTION!**

To avoid burning yourself, never touch hot screens when the machine is in operation.

**WARNING**

Lifting the glaze bucket may cause sprains or back injury.

**WARNING**

Serious personal injury may result from contact with pinch points between chain, sprockets and pulley. Cuts or loss of limb may occur when contacting these pinch points. Never operate the machine with guards and covers removed.

**CAUTION!**

To avoid burning yourself, never touch the hot conveyor chain when the machine is in operation.

**CAUTION!**

To avoid burning yourself, never touch the hot outfeed oven end panel when the machine is in operation.

**CAUTION!**

Serious personal injuries, such as scratches or cuts, may result from contact with sharp edges.

**CAUTION!**

Reaching across or leaning over the machine may result in burns when the machine is in operation.





## **SB-0345 Rev 1**

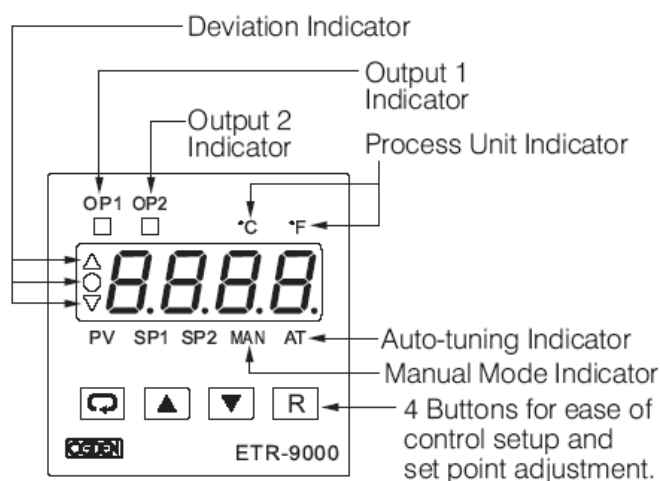
**AFFECTS:** TG-50

**PURPOSE: PROGRAMMING THE OGDEN ETR-9000 TEMPERATURE CONTROLLER**

### **Operator Interface:**

The operator interface on the Ogden ETR-9000, Temperature Controller, consists of the following:

- A scroll key  used to select a parameter to be viewed or adjusted.
- Up  and down  arrow keys are used to increase or decrease the selected parameter.
- A reset key  used to return to normal operation mode.

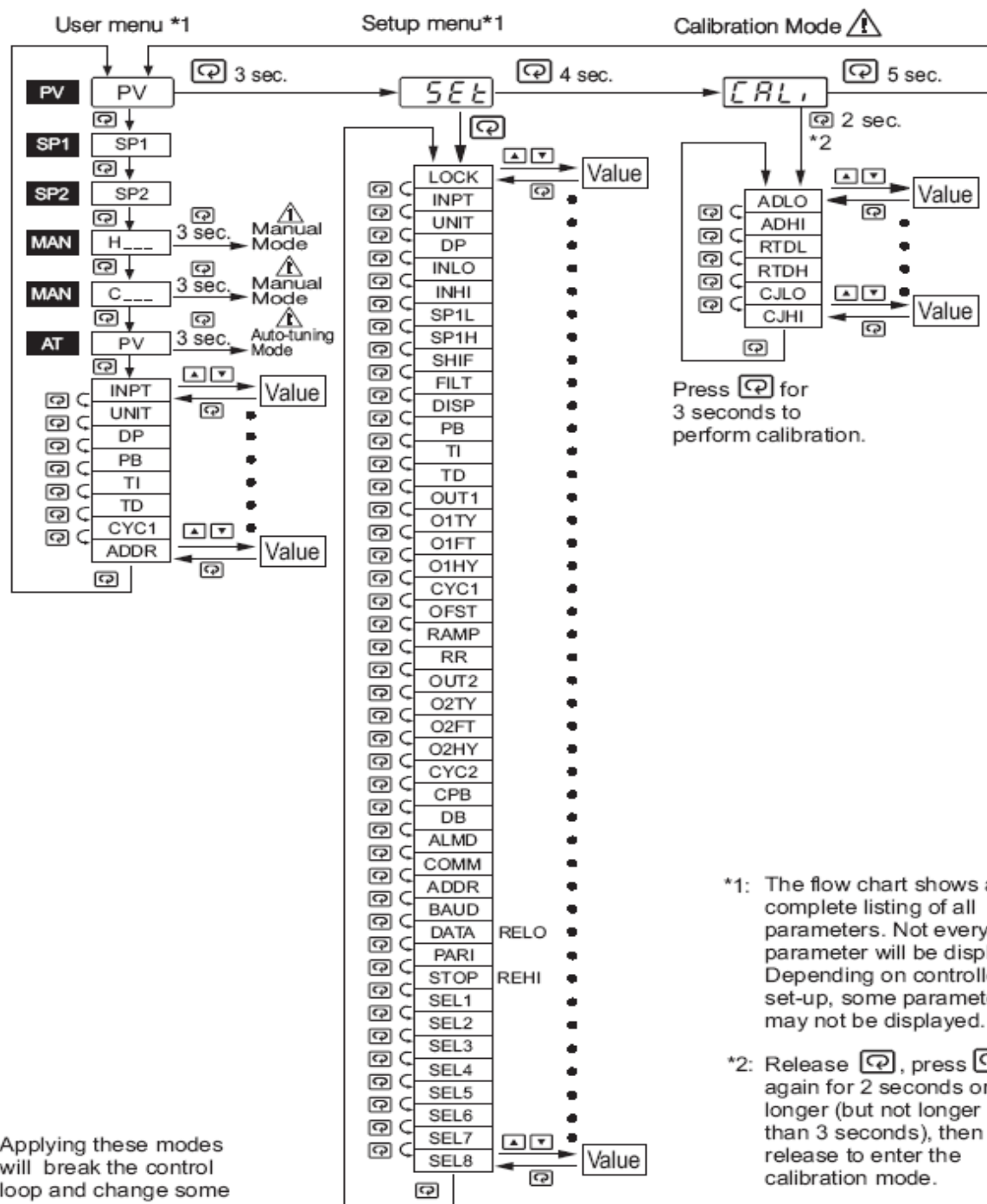


**Figure 1 – Operator Interface Description**

### **Menu Overview:**

There are three main menus that contain parameters that require programming; they are User Menu, Setup Menu, and Calibration Mode. The figure below (Figure 2) shows the sequence of operations necessary to access the programming parameters in each menu.












Applying these modes will break the control loop and change some of the previous setting data. Make sure that the system will tolerate these modes.

Figure 2 - Menu Flow Chart





---

## TG-50 Parameter Settings

Tables 1, 2 and 3 below list of the temperature controller default settings and the Belshaw Factory settings. When installing a new controller 3 of the default setting must be changed to the Belshaw Factory settings.

- Push and hold the scroll key  for 3 seconds, this will take you to the “**SEt**” menu.
- Push the scroll key  once to access the “**LoCK**” parameter.
- Push the Up  or down  arrow keys to change “**LoCK**” to “**nonE**”.
- Push the scroll key  to page through the settings and the Up  or down  arrow keys to change the settings listed in the Belshaw “**Factory**” column. (see tables 1, 2 and 3)

When finished setting parameters.

- Continue pushing the scroll key  until you are back to “**LoCK**”.
- Push the Up  or down  arrow keys to set “**LoCK**” to “**uSEr**”.
- Push the reset key  to return normal operation.

### Default Settings:

In the event that parameters have been modified without recording the modifications, change each parameter to match those listed in Tables 1, 2 and 3 listed below (controller parameter default settings). Then adjust **SP1H**, **PB**, **OUT2** and the **LoCK** parameters as listed in Belshaw “**Factory**” below. Then set **SP1** to 420°F.



**Table 1 - Parameter Descriptions**

Parameter Notation	Parameter Description	Range	Default Value	Factory
SP1	Set point for output 1	Low: SP1L      High :SP1H	77.0 °F (25.0 °C)	420°F
SP2	Set point for output 2 when output 2 performs alarm function or dwell timer	Low: -19999      High :45536	18.0°F (10.0 °C)	
LOCK	Select parameters to be locked	0 <b>none</b> : No parameters are locked 1 <b>SEt</b> : Setup data is locked 2 <b>uSEr</b> : Setup and User data is locked Set point is un- locked 3 <b>ALL</b> : All data is locked	0	set to "uSEr" after setup
INPT	Input sensor selection	0 <b>J-tC</b> : J type T/C      9 <b>Pt100</b> : PT 100 ohms DIN 1 <b>K-tC</b> : K type T/C      10 <b>Pt100</b> : PT 100 ohms JIS 2 <b>T-tC</b> : T type T/C      11 <b>4-20</b> : 4 - 20 mA 3 <b>E-tC</b> : E type T/C      12 <b>0-20</b> : 0 - 20 mA 4 <b>B-tC</b> : B type T/C      13 <b>0-60</b> : 0 - 60 mV 5 <b>R-tC</b> : R type T/C      14 <b>0-1V</b> : 0 - 1V 6 <b>S-tC</b> : S type T/C      15 <b>0-5V</b> : 0 - 5V 7 <b>N-tC</b> : N type T/C      16 <b>1-5V</b> : 1 - 5V 8 <b>L-tC</b> : L type T/C      17 <b>0-10</b> : 0 - 10V	1 (0)	
UNIT	Input unit selection	0 <b>C</b> : Degree C unit      2 <b>P</b> : Process unit 1 <b>F</b> : Degree F unit	0 (1)	
DP	Decimal point selection	0 <b>noDP</b> : No decimal point      2 <b>2-dP</b> : 2 decimal digits 1 <b>1-dP</b> : 1 decimal digit      3 <b>3-dP</b> : 3 decimal digits	1	
INLO	Input low scale value	Low: -19999      High: 45486	0°F (-17.8 °C)	
INHI	Input high scale value	Low: INLO+50      High: 45536	200.0°F (93.3 °C)	
SP1L	Low limit of set point value	Low: -19999      High: 45536	0°F (-17.8 °C)	
SP1H	High limit of set point value	Low: SP1L      High: 45536	1000°F (537.8 °C)	450°F
SHIF	PV shift (offset) value	Low: -360.0 °F (-200.0 °C)      High: 360.0 °F ( 200.0 °C)	0.0	-40°F
FILT	Filter damping time constant of PV (seconds)	0 <b>0</b> : 0      4 <b>2</b> : 2      8 <b>30</b> : 30 1 <b>0.2</b> : 0.2      5 <b>5</b> : 5      9 <b>60</b> : 60 2 <b>0.5</b> : 0.5      6 <b>10</b> : 10 3 <b>1</b> : 1      7 <b>20</b> : 20	2	
DISP	Normal display selection	0 <b>PV</b> : Display process value 1 <b>SP1</b> : Display set point 1 value	0	0°F
PB	Proportional band value	Low: 0      High: 932.0 °F (500.0 °C)	18.0 °F (10.0 °C)	0°F
TI	Integral time value	Low: 0      High: 1000 sec	100	
TD	Derivative time value	Low: 0      High: 360.0 sec	25.0	

**Table 2 - Parameter Descriptions**

Parameter Notation	Parameter Description	Range	Default Value	Set to
OUT1	Output 1 function	0 <i>rELY</i> : Reverse (heating ) control 1 <i>dirct</i> : Direct (cooling) control	0	
O1TY	Output 1 signal type	0 <i>rELY</i> : Relay                      5 <i>0-1V</i> : 0 - 1V 1 <i>SSrd</i> : Solid state relay drive   6 <i>0-5V</i> : 0 - 5V 2 <i>SSr</i> : Solid state relay        7 <i>1-5V</i> : 1 - 5V 3 <i>4-20</i> : 4-20 mA                8 <i>0-10</i> : 0 - 10V 4 <i>0-20</i> : 0 - 20 mA	0	
O1FT	Output 1 failure transfer mode	Select BPLS ( bumpless transfer ) or 0.0 ~ 100.0 % to continue output 1 control function as the unit fails, or select OFF (0) or ON (1) for ON-OFF control.	0	
O1HY	Output 1 ON-OFF control hysteresis	Low: 0.1                      High: 50.0 °C(90.0°F)	0.2 °F (0.1 °C)	
CYC1	Output 1 cycle time	Low: 0.1                      High: 90.0 sec.	18.0	
OFST	Offset value for P control	Low: 0                        High: 100.0 %	25.0	
RAMP	Ramp function selection	0 <i>nonE</i> : No Function        2 <i>Hr,r</i> : Use unit/hour 1 <i>minr</i> : Use unit/minute	0	
RR	Ramp rate	Low: 0                        High: 900.0 °F (500.0 °C)	0.0	
OUT2	Output 2 function	0 <i>nonE</i> : Output 2 No Function   5 <i>dbLo</i> : Deviation in band Alarm 1 <i>ELHr</i> : Dwell timer action      6 <i>PuHi</i> : Process High Alarm 2 <i>dELH</i> : Deviation High Alarm   7 <i>PuLo</i> : Process Low Alarm 3 <i>dELo</i> : Deviation Low Alarm   8 <i>CoLo</i> : Cooling PID Function 4 <i>dbHi</i> : Deviation out of band Alarm	2	“nonE”
O2TY	Output 2 signal type	0 <i>rELY</i> : Relay output              5 <i>0-1V</i> : 0 - 1V 1 <i>SSrd</i> : Solid state relay drive   6 <i>0-5V</i> : 0 - 5V 2 <i>SSr</i> : Solid state relay        7 <i>1-5V</i> : 1 - 5V 3 <i>4-20</i> : 4 - 20 mA                8 <i>0-10</i> : 0 - 10V 4 <i>0-20</i> : 0 - 20 mA	0	
O2FT	Output 2 failure transfer mode	Select BPLS ( bumpless transfer ) or 0.0 ~ 100.0 % to continue output 2 control function as the unit fails, or select ON (0) or OFF (1) for alarm and dwell timer function.	0	
O2HY	Output 2 hysteresis value when output 2 performs alarm function	Low: 0.1                      High: 90.0 °F (50.0 °C)	0.2 °F (0.1 °C)	
CYC2	Output 2 cycle time	Low: 0.1                      High: 90.0 sec.	18.0	
CPB	Cooling proportional band value	Low: 50                      High: 300 %	100	
DB	Heating-cooling dead band (negative value= overlap)	Low: -36.0                  High: 36.0 %	0	
ALMD	Alarm operation mode	0 <i>norm</i> : Normal alarm action   2 <i>Hold</i> : Hold alarm action 1 <i>Ltch</i> : Latching alarm action   3 <i>LtHo</i> : Latching & Hold action	0	

**Table 3 - Parameter Descriptions**

Parameter Notation	Parameter Description	Range	Default Value	Set to
COMM	Communication function	0 <i>nonE</i> : No communication 1 <i>rtu</i> : Modbus RTU mode protocol 2 <b>4-20</b> : 4-20mA retransmission output 3 <b>0-20</b> : 0-20mA retransmission output 4 <b>0-5V</b> : 0-5V retransmission output 5 <b>1-5V</b> : 1-5V retransmission output 6 <b>0-10</b> : 0-10V retransmission output	1	
ADDR	Address assignment of digital communication	Low: 1      High: 255	_____	
BAUD	Baud rate of digital communication	0 <b>24</b> : 2.4 Kbits/s      4 <b>192</b> : 19.2 Kbits/s 1 <b>48</b> : 4.8 Kbits/s      5 <b>288</b> : 28.8 Kbits/s 2 <b>96</b> : 9.6 Kbits/s      6 <b>384</b> : 38.4 Kbits/s 3 <b>144</b> : 14.4 Kbits/s	2	
DATA	Data bit count of digital communication	0 <b>7b, E</b> : 7 data bits 1 <b>8b, E</b> : 8 data bits	1	
PARI	Parity bit of digital communication	0 <b>EVEN</b> : Even parity      2 <i>nonE</i> : No parity bit 1 <b>odd</b> : Odd parity	0	
STOP	Stop bit count of digital communication	0 <b>1b, E</b> : One stop bit 1 <b>2b, E</b> : Two stop bits	0	
RELO	Retransmission low scale value	Low: -19999      High: 45536	32.0 °F (0.0 °C)	
REHI	Retransmission high scale value	Low: -19999      High: 45536	212.0 °F (100.0 °C)	
SEL1	Select 1'st parameter for user menu	0 <i>nonE</i> : No parameter selected      9 <i>o1HY</i> : O1HY is put ahead 1 <i>LOCK</i> : LOCK is put ahead      10 <i>CYC1</i> : CYC1 is put ahead 2 <i>INPT</i> : INPT is put ahead      11 <i>OFST</i> : OFST is put ahead 3 <i>UNIT</i> : UNIT is put ahead      12 <i>RR</i> : RR is put ahead 4 <i>DP</i> : DP is put ahead      13 <i>o2HY</i> : O2HY is put ahead 5 <i>SHIF</i> : SHIF is put ahead      14 <i>CYC2</i> : CYC2 is put ahead 6 <i>PB</i> : PB is put ahead      15 <i>CPB</i> : CPB is put ahead 7 <i>T1</i> : T1 is put ahead      16 <i>db</i> : DB is put ahead 8 <i>TD</i> : TD is put ahead      17 <i>ADDR</i> : ADDR is put ahead	2	
SEL2	Select 2'nd parameter for user menu	Same as SEL1	3	
SEL3	Select 3'rd parameter for user menu	Same as SEL1	4	
SEL4	Select 4'th parameter for user menu	Same as SEL1	6	
SEL5	Select 5'th parameter for user menu	Same as SEL1	7	
SEL6	Select 6'th parameter for user menu	Same as SEL1	8	
SEL7	Select 7'th parameter for user menu	Same as SEL1	10	
SEL8	Select 8'th parameter for user menu	Same as SEL1	17	

# Cleaning

5

## **Daily TG Cleaning Instructions**

### **Disassembly**

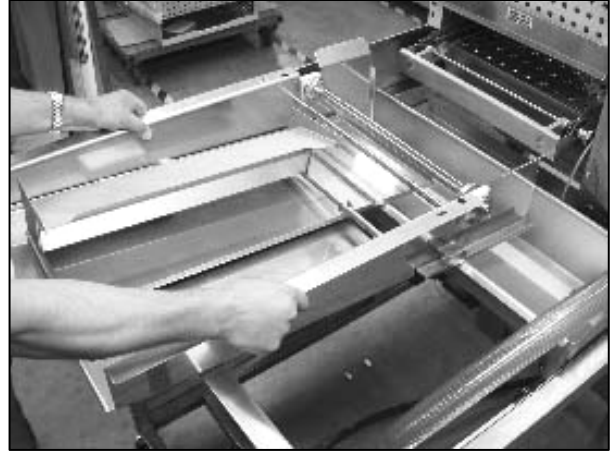
1. Allow the Thermoglaze to completely cool.  
(All material must under 130°)
2. Pump the unused glaze back into a bucket.
3. **Disconnect the TG from power!**
4. Remove the glaze trough.



5. Remove the drive belt.



6. Remove the glazer drain tray.



7. Disconnect the conveyor drive coupling.



8. Remove the conveyor assembly through the outfeed end of the oven.



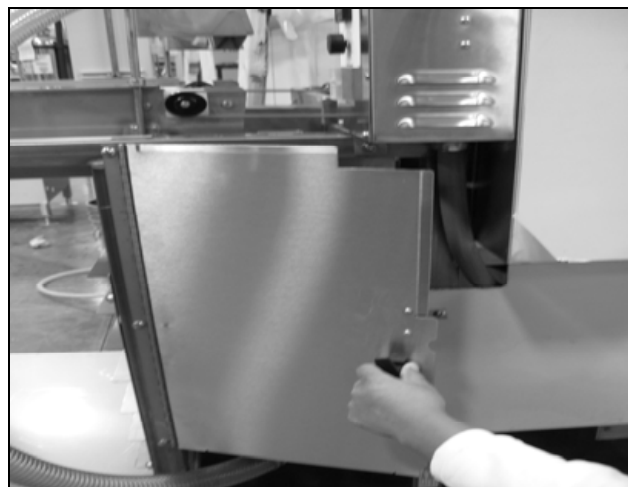
### WARNING

Failure to wash the conveyor chain **daily** may cause damage to the conveyor drive motor. The Thermoglaze will shut down if the chain becomes stiff from glaze buildup. After cleaning, the motor reset button may need to be pressed, located under the control panel.

9. Remove the oven crumb tray.



10. Open the safety cover.



11. Loosen the lower glaze hose clamp.



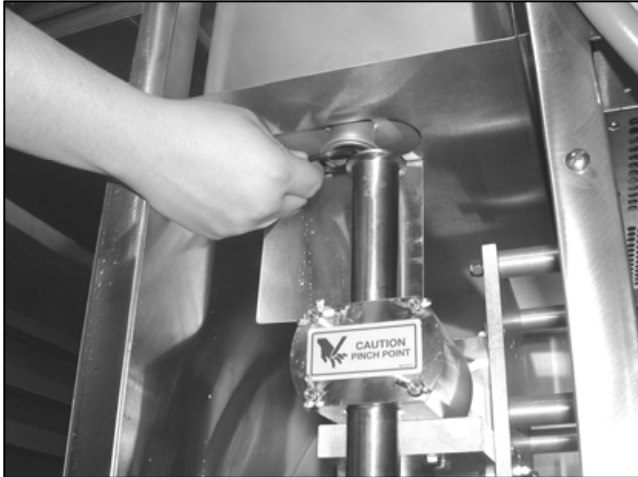
12. Remove the lower glaze hose clamp and gasket.



13. Remove the upper pump clamp.



14. Lift the glaze reservoir and remove the gasket



15. Remove the glaze reservoir and hose.



16. Remove the drip pan.

17. Unscrew and remove the 4 glaze pump cover wing nuts.



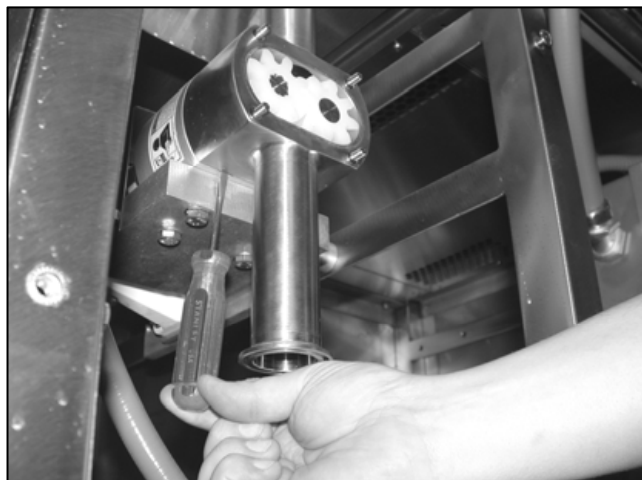
18. Remove the glaze pump cover and "O" ring.



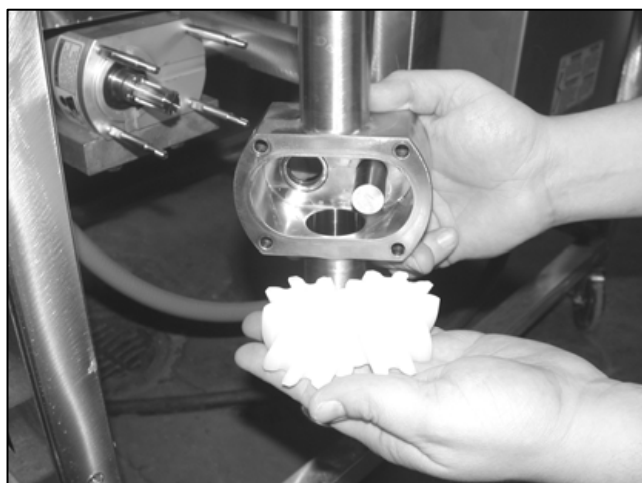
19. Remove the glaze pump body.



- 
20. Insert a flat tip screw driver into the slot to loosen the pump body if it can not be removed by hand.



21. Remove the pump body and impellers.  
22. Remove the impellers from the pump body.



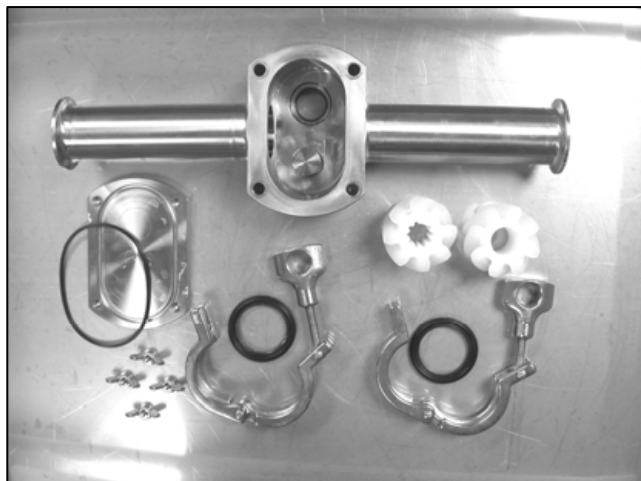
### **WARNING**

Spilled glaze on the floor may cause slipping and falling, resulting in sprains, burns, broken bones or back injury.



## Cleaning

1. Hand wash all parts of the oven and glazer with warm soapy water.
2. Do not use caustic cleaners on oven parts.
3. You may use an approved oven cleaner on the stainless steel finger cover only.
4. Do not use oven cleaner on any other part of the oven or glazer!
5. Do not hose/spray down any part of this machine.



6. Glaze pump body and parts.

### CAUTION

Failure to properly clean or lubricate glaze pump may cause damage to the pump gear impellers.

7. Wash the conveyor and chain **daily** with warm soapy water to remove all glaze build-up on the chain.

### NOTE

Lubricate the Pump Body, Shaft “O” Ring, and gear impellers with “Kay” Food Grade Lubricant. See following picture.





## WARNING

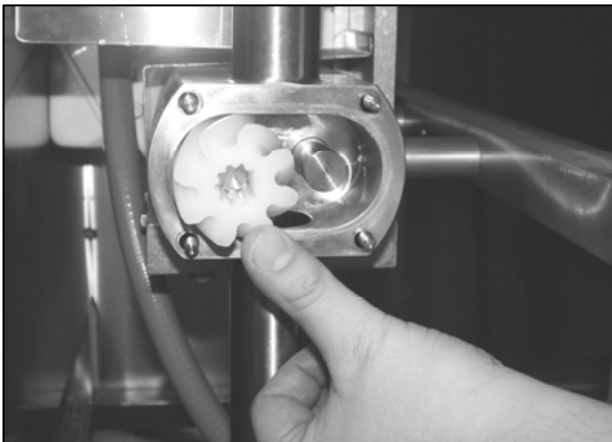
Growth of organisms in gaps, crevices, glaze pump, lines, or frame can result from improper cleaning and can cause mild to serious ill health.

## WARNING

Donuts or filling may catch fire due to improper cleaning and can cause serious injury, burns, or death.

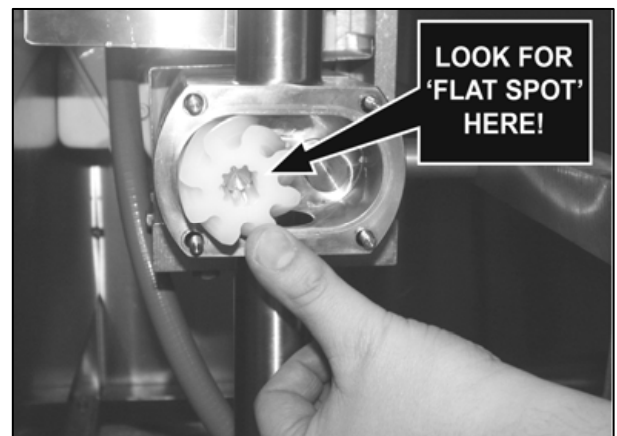
### Assembly

1. Install the glaze pump body.
2. Install the drive gear impeller. Line up the flat on the shaft with the flat in the impeller.



## NOTE

Lubricate the pump body, shaft “o” ring and gear impellers with food grade mineral oil.



3. Install the lay gear impeller.



4. Install the “O” ring into the glaze pump cover. Make sure it stays in place and you do not pinch it between the pump and cover. The “O” ring may need to be stretched before installing.

5. Install the 4 wing nuts finger tight.



6. Set the upper gasket on top of the glaze pump.



7. Install the glaze reservoir.



8. Install the upper clamp.



9. Install the lower gasket, hose and clamp.



10. Close the safety cover. Make sure the key is in the safety switch.



**NOTE**

The glaze pump will not run with the safety cover open.

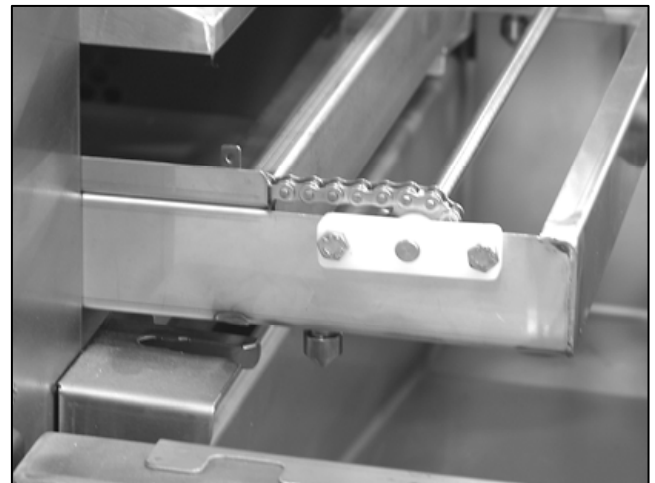
11. Install the oven crumb tray.



12. Insert the conveyor through the outfeed end of the oven.



13. Make sure the locating pin is in the matching hole.



- 
14. Pull the drive coupling back and line it up with the conveyor drive shaft.



15. Install the glaze drain tray.



16. Connect the drive belt.
17. Install the rear panel by making sure the key attached to the rear panel is inserted into the safety interlock switch, then screwing in the thumb screw.

<b>NOTE</b>
The glaze pump will not run with the rear panel removed.

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# Maintenance

# 6

The ThermoGlaze is engineered to need little maintenance. By keeping the system clean, the equipment will last for years. The only maintenance that is required is the following:

When cleaning the donut system, check all rubber gaskets for wear and replace when necessary. Check for wear on impellers of the glaze pump, replace when necessary. .

**DO NOT** spray machine with water or cleaning agents to clean. Only wipe main unit off with damp cloth.

## WARNING

### HAZARDOUS VOLTAGE

Contact with electricity in the control box can cause shocks, burns or death. Always disconnect the control box from power source before maintenance.

## WARNING

Contact with electricity in the main cable can cause shocks, burns or death. Always disconnect the main electrical cable from the power source before maintenance.

## WARNING

Electrical fires can cause serious shock, injury, burns or death. Always disconnect the machine from power source before maintenance.

# Troubleshooting

# 7

Call Belshaw Bros. at (206)322-5474, or (800) 578-2547. One of our customer support representatives will be happy to help you. When you call, please specify the following:

- The model name of the machine.
- The serial number of the machine.
- The voltage, phase, and hertz (cycle) of the machine. This information can be found on the small, rectangular data tag/plate.

## CAUTION

If you perform repairs yourself or have them performed by anyone other than Belshaw Bros. or a service technician authorized by Belshaw Bros., you do so at your own risk.

Following is a troubleshooting chart to help you identify and solve some basic problems.

## WARNING

Disconnect the machine from the power source before disassembling, repairing, or wiring.

## WARNING

To avoid serious injury, always disconnect the Thermoglaze from the power source before troubleshooting.

<b>CONVEYOR WILL NOT MOVE</b>	
<b>Possible Causes</b>	<b>What To Do</b>
Oven not to correct temperature yet.	Wait until the oven comes to temp.and the ready light comes on.
Conveyor is jammed.	Check for obstruction in conveyor and remove.
Motor circuit breaker is tripped.	Push the black circuit breaker reset at bottom of oven control panel.
<b>GLAZER WILL NOT PUMP GLAZE</b>	
Glazer motor is not running.	Check to make sure the motor is running.  (See Pump Motor Will Not Run)
Glazer pump impellers are worn.	1. Disconnect power. 2. Replace impellers.
The rear panel safety key is not inserted in the safety switch.	Make sure the rear panel safety key is inserted into the safety switch.
<b>GLAZE IS MISSING THE DONUTS ON ONE SIDE OF THE GLAZE SCREEN</b>	
Glazer or glaze trough is not level.	Adjust level of glaze trough by moving set collar.
Glaze pump is running too slow.	1. Disconnect from power. 2. Open Electrical Enclosure. 3. Turn glazer speed control clockwise. 4. Close Electrical Enclosure.

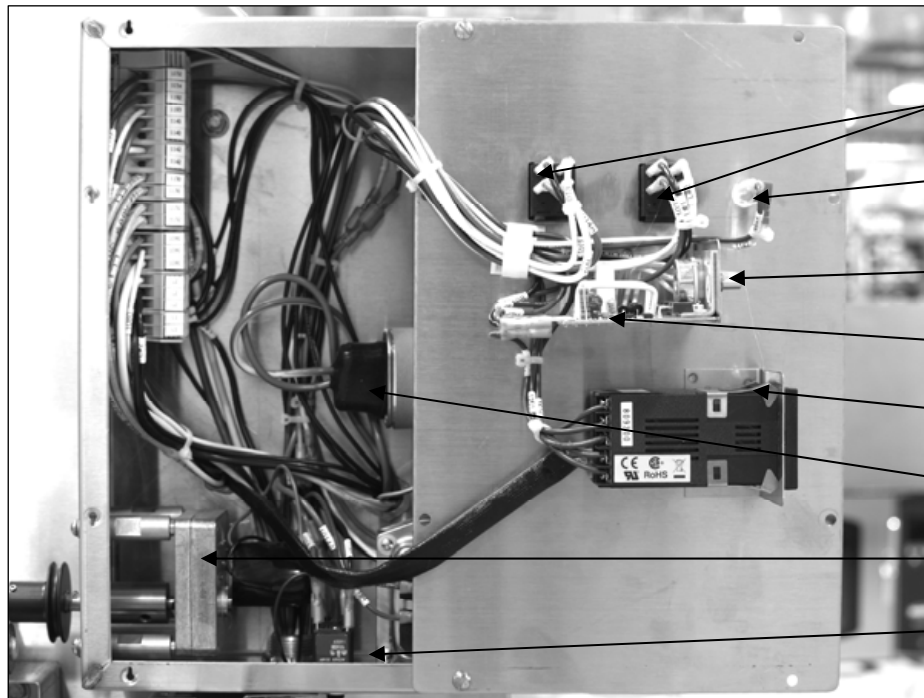
THE PUMP MOTOR WILL NOT RUN	
Possible Causes	What To Do
The connection of the power cord to the power source is faulty.	Make sure the power cord is fully plugged in to a proper power source.
The circuit breaker has been tripped.	<ol style="list-style-type: none"> <li>1. Disconnect from power.</li> <li>2. Open electrical enclosure.</li> <li>3. Reset circuit breaker.</li> <li>4. Close electrical enclosure.</li> </ol>
The rear panel is not installed properly	<ol style="list-style-type: none"> <li>1. Reinstall the rear panel.</li> <li>2. Make sure that the key attached to the rear panel is inserted into the safety interlock switch.</li> </ol>
	<b>NOTE</b>
	The glaze pump will not run with the rear panel removed.
THE FILL HOSE IS LEAKING	
Possible Causes	What To Do
Fill hose is leaking at the connection.	Hose bracket needs adjusting or tightening.
Fill hose is leaking near the pump.	Check for missing or damaged o-ring.



## **Calibration Procedure for Temperature and Cook Time on the Thermoglaze Model TG50**

Turn off power to the TG50 before removing any access covers. This procedure should be performed only by qualified service technicians. Remove the electrical box cover on the oven to access the temperature and speed control

adjustment potentiometers. The following is a photo of the location of the adjustment potentiometers for the temperature and cooking time for the Belshaw TG50 Thermoglaze.



Rocker Switches

Donut Ready Light

Speed Controller

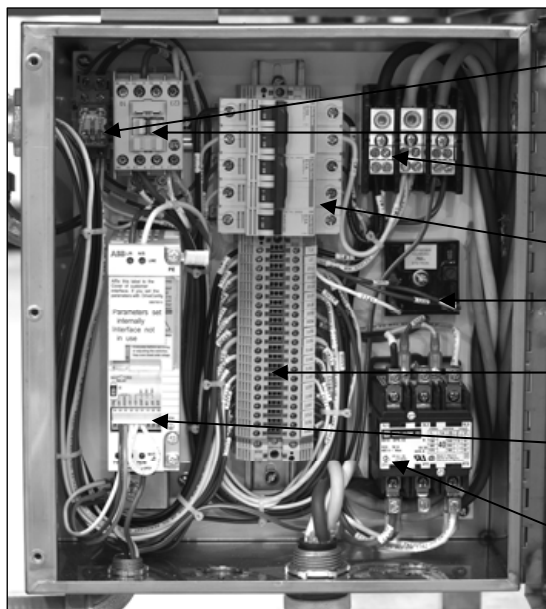
Conveyor Drive Board

Temperature Controller

Transformer

Conveyor drive motor

Reset Breakers for Pump and Conveyor



Conveyor Relay

Heater Contactor

Power Distribution Block

Circuit Breakers

Time Delay Relay

Terminal Block

VFD

MCR

Safety Switch



Glaze Pump

## **Speed control/cook time adjustment:**

Turn on the oven and allow it to heat for 30 minutes.

Put a glaze screen on the conveyor chains that run through the oven. With the oven in operation, time the leading edge of the screen as it enters the oven until the leading edge just leaves the exit end of the oven. Adjust the potentiometer until the desired time/speed is found. To increase the cook time, turn the potentiometer clockwise. To decrease the cook time, turn the potentiometer counterclockwise. The factory setting for cook time for the TG50 is 1 ½ minutes.

## **Temperature Adjustment:**

Measure the temperature from the lower baffle on the exit end of the oven. Place a thermocouple in the hole located on the baffle, 3<sup>rd</sup> row from the outside, 3<sup>rd</sup> hole from the back side of the oven.

**Note:** The back side of the oven has a fan motor extended from it. Adjust the temperature by rotating the potentiometer located to the right of the speed control, clockwise increases the temperature, and counterclockwise decreases the temperature. The factory setting is 400° F.

## **Glaze Pump VFD Setup**

The glaze pump VFD (ABB model ACS55) does not require any programming. All parameters are factory set via dipswitches and potentiometers as shown on sheet 2 of the electrical schematic.

For older TG-50's with the Telemecanique VFD see SB-0315R3 for programming and trouble shooting

### **NOTE**

**PUMP COVER CAN BE REMOVED WITHOUT TOOLS.**

EN

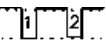
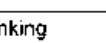
21

### **Status indications and fault tracing**

ACS55 has two status indication LEDs, visible through the front cover.

If the drive detects a problem, the red LED will blink. After fixing the problem, reset by switching the start signal off. If start is off already, turn it first on and then off again.

See the table below for the fault codes (= the number of LED blinks)

Green LED	Red LED	Description
On	Off	ACS55 operates normally.
On	Blinking On  Off 	Protective function has been activated. Number of blinks indicates the fault code.
Blinking	Blinking	ACS55 will reset automatically within 3 seconds. (*) <b>Warning!</b> Motor starts, if start signal is on.

#	Possible causes and what to do	#	Possible causes and what to do
1	DC overvoltage (*). 1) Mains voltage is too high: Check supply. 2) Deceleration ramp time is too short compared to the load inertia: Increase ACC/DEC time with potentiometer.	6	Analogue input value is less than 4 mA/2 V. (*) <b>Note:</b> This supervision is active if AI OFFSET is ON.
2	DC undervoltage (*). Mains voltage is too low: Check supply.	7	Motor overload ( $I^2t$ overload): 1) Check the load, and verify that the motor size is suitable for ACS55. 2) Verify that setting of MOTOR   NOM potentiometer is correct.
3	Output short circuit: Switch off the power and check the motor windings and motor cable.	8	Inverter overload or excessive internal temperature: 1) Load is too high or 2) drive cooling is insufficient.
4	Output overcurrent. 1) Acceleration time is too short compared to the load inertia: Increase ACC/DEC time with potentiometer. 2) Motor and drive sizes do not match: Check motor.	9	Other fault. Internal error. Turn power off and on again. If problem persists, replace the unit.
5	Reserved	10	Parametrization fault. <b>Note:</b> Both LEDs will blink. DIP switches have been moved from default setting after the drive has been parametrized with DriveConfig tool. Put the switches back to default position.

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# Appendix

8

Service Bulletin SB-0361

**WARNING:** Special Cleaning Instructions

Parts List Drawing Insert Page.

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## SERVICE BULLETIN SB-0361

**This is a maintenance advisory for all owners of Thermoglaze TG-25 and TG-50 machines.**

Belshaw has recently been informed of conveyor chain binding and/or failures on these machines. We have addressed the problem by inspecting machines during assembly, and by testing and inspecting chains returned to us from the field.

We have concluded that almost all of these problems can be avoided if the recommended maintenance procedures from the manual be strictly adhered to.

A label (TG-9031) is included with this service bulletin and it should be placed on your machine in a prominent area that will easily remind all employees of the necessity to maintain and clean this equipment. ***Please note – equipment failure caused as a result of not following these maintenance and cleaning instructions will not be covered under warranty.***

Specifically – The conveyor **MUST** be removed from the unit and thoroughly cleaned with water and a mild detergent to remove all glaze, and any other contaminants, **DAILY**. See manual for more information.

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## **Daily TG Cleaning Instructions**

### **Disassembly**

1. Allow the Thermoglaze to completely cool. (All material must under 130°)
2. Pump the unused glaze back into a bucket.
3. **Disconnect the TG from power!**
4. Remove the REAR panel by unscrewing the thumb screws
5. Remove the glaze trough.
6. Remove the drive belt.



7. Remove the glazer drain tray.



- 
8. Disconnect the conveyor drive coupling.



9. Remove the conveyor assembly through the outfeed end of the oven.



10. Remove the oven crumb tray.



11. Remove the safety cover.



### WARNING

Failure to wash the conveyor chain **daily** may cause damage to the conveyor drive motor. The Thermoglaze will shut down if the chain becomes stiff from glaze buildup. After cleaning, the motor reset button may need to be pressed, located under the control panel. ***NOTE – THE SERVICE CALL TO FIX THIS PROBLEM WILL NOT BE COVERED UNDER WARRANTY.***